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Cometary Observations at the Liverpool Observatory. By W. E. Plummer.

Continued from Vol. LXIV. p. 783.

Comet a 1904, *Brooks* = *Comet* 1904 *I.*

Greenwich Mean Time of Observation. 1904	h m s	♂ − * R.A. m s	No. of Comp.	Apparent R.A. of Comet. h m s	♂ − * Decl. ′ ″	No. of Comp.	App. Decl. of Comet. ° ′ ″	Log. Factor of Parallax in α.	in δ.	Star of Comp.
Apr. 17	10 26 8·0	− 3 25·73	10	16 56 26·89	− 3 4·8	5	+44 42 59·7	−9·6782	+0·6068	1
19	10 22 17·8	− 3 19·46	10	16 50 49·17	− 2 46·7	5	+45 57 45·1	−9·6823	+0·5753	2
24	10 29 30·2	− 1 15·17	12	16 35 2·70	+ 5 20·0	4	+48 54 52·9	−9·6729	+0·4404	3
24	10 29 30·2	− 0 54·31	12	16 35 2·57	− 8 8·6	4	+48 54 52·5	−9·6729	+0·4404	4
30	10 3 30·1	− 46·41	10	16 13 6·52	+11 18·1	5	+52 1 36·4	−9·6798	+0·3768	5
May 2	9 37 11·0	+ 2 59·71	8	16 5 8·41	− 3 1·8	4	+52 56 10·4	−9·7010	+0·3269	6
3	9 14 40·7	+ 10·65	10	16 1 3·75	− 6 57·0	5	+53 21 48·0	−9·6202	+0·3623	7
5	9 40 16·3	− 32·66	10	15 52 29·40	− 7 20·8	5	+54 11 11·2	−9·6887	+0·1872	8
5	9 40 16·3	+ 1 49·36	10	15 52 29·17	+ 1 37·1	5	+54 11 12·3	−9·6887	+0·1872	9
7	10 1 31·8	+ 3 23·39	12	15 43 38·84	+ 5 35·1	4	+54 55 55·9	−9·6216	+9·9586	10
9	9 59 20·2	+ 3 39·69	8	15 34 39·03	− 1 29·9	4	+55 35 46·7	−9·5975	+9·8024	11
9	9 59 20·2	− 3 38·88	8	15 34 38·82	+ 1 19·7	4	+55 35 47·0	−9·5975	+9·8024	12
14	10 50 2·3	+ 7 9·17	10	15 12 21·62	− 8 46·9	5	+56 55 30·3	−9·2589	−9·5884	13
15	9 54 0·4	+ 1 36·80	8	15 6 49·23	+ 3 10·7	4	+57 7 27·9	−9·4829	−8·8546	13
18	9 59 4·1	+ 1 16·28	10	14 52 48·17	+ 4 7·6	5	+57 37 35·0	−9·3573	−9·5961	14
18	9 59 4·1	− 1 20·56	10	14 52 48·31	+11 41·9	5	+57 37 34·3	−9·3573	−9·5961	15
19	9 36 22·5	+ 0·98	12	14 48 13·50	− 3 2·3	4	+57 45 19·2	−9·4252	−9·4944	16

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Comet 1904 *I.*—(*continued*).

Greenwich Mean Time of Observation.				♂ − ✳ R.A.	No. of Comp.	Apparent R.A. of Comet.	♂ − ✳ Decl.	No. of Comp.	App. Decl. of Comet.	Log. Factor of Parallax in α.	in δ.	Star of Comp.
1904	h	m	s	m s		h m s	′ ″		° ′ ″			
May 20	9	52	11·2	− 1 40·36	12	14 43 34·11	+ 7 32·9	4	+57 52 8·4	−9·3041	−9·6985	17
24	9	40	16·0	+ 3 13·47	Ret.	14 25 31·80	+ 4 51·6	Ret.	+58 8 54·7	−9·1520	−9·8133	18
25	10	35	13·9	+ 1 21·09	12	14 20 58·62	+ 3 53·6	4	+58 10 44·7	+8·6157	−9·9565	19
25	10	35	13·9	− 4 49·66	12	14 20 58·22	− 15·7	4	+58 10 45·2	+8·6157	−9·9565	20
28	10	22	11·0	+13 26·09	Ret.	14 8 15·90	− 1 7·3	Ret.	+58 10 40·9	+8·8711	−9·8589	21
June 3	10	39	47·2	+ 52·07	12	13 44 54·06	+ 5 27·1	4	+57 49 45·0	+9·3941	−9·3404	22
4	10	55	30·1	+ 4 25·02	12	13 41 17·60	+ 2 23·3	4	+57 44 4·4	+9·5223	−8·8915	23
4	10	55	30·1	− 2 44·52	12	13 41 17·47	− 13·0	4	+57 44 4·9	+9·5223	−8·8915	22
5	10	50	57·0	+ 56·75	10	13 37 49·33	− 3 57·0	5	+57 37 44·1	+9·4937	−9·1129	23
12	10	40	15·8	+ 9·38	Ret.	13 16 3·93	+13 35·9	Ret.	+56 40 52·4	+9·5971	+9·6205	24
21	10	30	19·9	− 1 0·53	Ret.	12 54 29·20	− 5 52·1	Ret.	+55 6 0·3	+9·6721	+0·1008	25
28	10	40	35·2	+ 1 2·37	10	12 42 3·99	+ 7 2·8	5	+53 44 29·1	+9·7214	+0·3488	26
29	10	25	4·0	− 26·92	10	12 40 34·67	− 4 36·6	5	+53 32 49·8	+9·7088	+0·3196	26
July 7	11	16	10·2	− 1 12·26	10	12 30 34·59	− 4 34·9	5	+51 58 14·0	+9·7520	+0·5886	27
8	11	3	58·4	+ 35·26	10	12 29 34·67	+ 19·0	5	+51 46 45·1	+9·7486	+0·5771	28
8	11	3	58·4	+ 23·64	10	12 29 34·50	+ 14·4	5	+51 46 46·2	+9·7486	+0·5771	29
9	11	4	0·3	+ 0·21	12	12 28 36·53	− 3 16·6	4	+51 35 8·9	+9·7486	+0·5916	30
9	11	4	0·3	+ 2 26·30	12	12 28 36·41	+ 4 18·3	4	+51 35 9·3	+9·7486	+0·5916	31
11	11	3	36·0	+ 4 58·53	10	12 26 49·91	− 1 44·3	5	+51 12 13·3	+9·7465	+0·6115	32
16	10	40	16·2	+ 31·48	10	12 23 5·92	− 7 14·7	5	+50 16 30·2	+9·7418	+0·6108	33
18	10	59	32·9	+ 7·37	Ret.	12 21 51·87	− 6 35·7	Ret.	+49 54 39·8	+9·7355	+0·6737	34

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Encke's Comet.

Greenwich Mean Time of Observation.				♂ − ✱ R.A.	No. of Comp.	Apparent R.A. of Comet.			♂ − ✱ Decl.	No. of Comp.	App. Decl. of Comet.			Log. Factor of Parallax in α.	in δ.	Sta of Comp.
1904	h	m	s	m s		h	m	s	′ ″		°	′	″			
Nov. 26	6	44	11·0	+ 2 24·25	Ret.	21	30	51·33	+ 7 7·2	Ret.	+12	18	29·4	+9·1571	+0·7669	35
Dec. 5	6	53	18·2	+ 38·31	10	20	57	46·42	− 5 14·6	5	+ 7	4	19·5	+9·3820	+0·8134	36
5	6	53	18·2	+ 1 8·55	10	20	57	46·60	+ 3 16·9	5	+ 7	4	22·2	+9·3820	+0·8134	37
6	6	32	18·5	− 1 9·60	12	20	54	7·02	+ 2 10·9	4	+ 6	28	27·4	+9·3525	+0·8151	38
8	6	10	40·9	+ 1 22·82	12	20	46	37·15	+ 3 10·5	4	+ 5	14	46·6	+9·3119	+0·8205	39
8	6	10	40·9	+ 1 32·16	12	20	46	36·94	+ 7 49·4	4	+ 5	14	47·1	+9·3119	+0·8205	40
10	6	27	18·0	− 5·00	Ret.	20	38	49·57	− 2 13·1	Ret.	+ 3	57	40·7	+9·4040	+0·8303	41
13	6	0	35·3	− 1 4·50	10	20	26	43·85	− 4 56·4	5	+ 1	57	29·2	+9·3980	+0·8391	42
14	5	27	11·4	− 1 22·82	10	20	22	25·30	+ 3 40·9	5	+ 1	16	19·4	+9·3452	+0·8415	43
17	5	16	40·0	+ 2 51·96	10	20	9	14·62	+ 9 42·9	5	− 0	56	23·0	+9·3766	+0·8510	44
17	5	16	40·0	+ 14·66	10	20	9	14·60	+ 55·3	5	− 0	56	24·9	+9·3766	+0·8510	45

Comet e 1904 (*Borrelly*) = *Comet* 1905 *II.*

1905																
Jan. 4	6	27	30·0	− 7·71	Ret.	1	21	24·40	− 47·6	Ret.	− 5	10	46·9	+7·1072	+0·8731	46
8	6	29	49·8	− 3 44·87	10	1	27	16·12	− 3 3·0	5	− 1	56	40·5	+8·3042	+0·8578	47
9	6	42	39·1	− 17·42	10	1	28	49·16	− 2 44·3	5	− 1	8	6·4	+8·6384	+0·8535	48
9	6	42	39·1	+ 10·99	10	1	28	49·11	+ 7 40·8	5	− 1	8	9·3	+8·6384	+0·8535	49
11	7	22	40·3	+ 2 6·08	Ret.	1	32	0·60	+ 53·8	Ret.	+ 0	28	48·2	+9·0415	+0·8447	50
26	7	40	16·0	+ 1 3·20	Ret.	1	59	3·37	− 2 52·5	Ret.	+11	50	25·1	+9·2625	+0·7750	51

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Comet a 1905 (*Giacobini*) = *Comet* 1905 *III.*

Greenwich Mean Time of Observation.		♂ − ✱ R.A.	No. of Comp.	Apparent R.A. of Comet.	♂ − ✱ Decl.	No. of Comp.	App. Decl. of Comet,	Log. Factor of Parallax in α.	in δ.	Star of Comp.
1905	h m s	m s		h m s	′ ″		° ′ ″			
Mar. 30	9 4 32·1	− 30·92	Ret.	5 58 43·36	+ 5 3·6	Ret.	+15 54 11·1	+9·4520	+0·7677	52
Apr. 3	9 15 11·9	+ 40·20	...	6 14 17·70	+ 8 0·5	...	+20 44 56·0	+9·4800	+0·7384	53
8	9 14 0·4	− 1 25·20	...	6 35 32·70	+ 3 8·0	...	+26 33 40·2	+9·4957	+0·6880	54

Comet b 1905 (*Schaer*) = *Comet* 1905 *V.*

Nov. 20	10 2 35·0	− 16·84	Ret.	23 54 42·79	−17 17·8	Ret.	+62 10 59·8	+9·5901	+0·3411	55
23	10 2 4·9	− 47·87	8	23 38 17·92	+ 5 59·2	4	+37 29 45·3	+9·4356	+0·4862	56
24	11 14 45·1	+ 49·38	10	23 35 53·63	− 4 1·8	5	+30 31 42·7	+9·5383	+0·6656	57
29	9 12 52·0	− 3 58·11	8	23 31 1·84	− 9 51·0	4	+ 9 23 8·0	+9·2930	+0·7972	58
30	6 11 32·8	− 1 52·46	Ret.	23 30 43·19	− 4 13·1	Ret.	+ 7 1 59·2	−8·8229	+0·8027	59

Comet b 1906 (*Kopff*) = *Comet* 1905 *IV.*

1906 Mar. 6	10 2 16·0	− 2 32·18	10	11 34 44·57	− 2 30·5	5	+ 1 43 32·8	−9·3744	+0·8398	60
8	9 43 28·9	− 3 23·27	10	11 33 53·51	+ 24·2	5	+ 1 46 27·3	−9·3945	+0·8399	60
8	9 43 28·9	+ 5 39·07	10	11 33 53·11	− 1 45·0	5	+ 1 46 26·2	−9·3945	+0·8399	61
15	9 27 11·3	+ 3 2·01	8	11 30 50·94	+ 5 30·8	4	+ 1 56 59·3	−9·3656	+0·8386	62
18	8 44 9·4	− 22·08	10	11 29 35·01	+ 40·3	5	+ 2 1 29·3	−9·4257	+0·8394	63
20	10 22 0·5	− 1 14·11	10	11 28 42·99	+ 3 45·7	5	+ 2 4 34·7	−9·1218	+0·8358	63
Apr. 18	9 31 5·0	− 34·93	8	11 20 25·61	+ 6 24·4	4	+ 2 29 39·3	−8·4235	+0·8324	64
20	9 26 53·1	+ 17·99	8	11 20 14·52	− 7 15·3	4	+ 2 29 22·1	−8·3151	+0·8325	65
28	9 16 24·2	+ 24·06	10	11 20 1·22	− 30·8	5	+ 2 25 25·9	+8·0789	+0·8329	66

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1906MNRAS..67S.100.

Stars of Comparison. Comet 1904 *I.*

Date. 1904	Star's Designation or Authority for Place.	Mean R.A. Equinox of Year. h m s	Corrections to Mean R.A. s	Mean Declination Equinox of Year. ° ′ ″	Correction to Mean Declination. ″	No. of Reference.
Apr. 17	A.G.Z. Bonn, No. 10909	16 59 51·06	+1·56	+44 46 11·9	− 7·4	1
19	,, ,, No. 10841	16 54 7·01	+1·62	46 0 39·0	− 7·2	2
24	,, ,, No. 10664	16 36 16·05	+1·82	48 49 38·6	− 5·7	3
24	,, ,, No. 10656	16 35 55·16	+1·72	49 3 6·1	− 5·0	4
30	A.G.Z. Harvard, No. 4954	16 13 50·87	+2·06	51 50 21·9	− 3·6	5
May 2	,, ,, No. 4911	16 2 6·59	+2·11	52 59 14·9	− 2·7	6
3	,, ,, No. 4903	16 0 50·96	+2·14	53 28 47·4	− 2·4	7
5	,, ,, No. 4869	15 52 59·88	+2·18	54 18 33·6	− 1·6	8
5	,, ,, No. 4862	15 50 37·63	+2·18	54 9 36·7	− 1·5	9
7	,, ,, No. 4822	15 40 13·24	+2·21	54 50 21·4	− 0·6	10
9	A.G.Z. Hels. Gotha, No. 8408	15 30 57·10	+2·24	55 37 16·3	+ 0·3	11
,,	,, ,, ,, No. 8461	15 38 15·43	+2·27	55 34 27·4	− 0·1	12
14	,, ,,. ,, No. 8240	15 5 10·20	+2·25	57 4 14·4	+ 2·8	13
18	,, ,, ,, No. 8172	14 51 29·71	+2·18	57 33 23·2	+ 4·2	14
18	,, ,, ,, No. 8183	14 54 6·69	+2·18	57 25 48·2	+ 4·2	15
19	,, ,, ,, No. 8149	14 48 10·35	+2·17	57 48 16·8	+ 4·7	16
20	,, ,, ,, No. 8117	14 45 12·33	+2·14	57 44 30·4	+ 5·1	17
24	,, ,, ,, No. 7966	14 22 16·29	+2·04	58 3 56·9	+ 6·2	18
25	,, ,, ,, No. 7949	14 19 35·56	+1·97	58 6 44·2	+ 6·9	19

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1906MNRAS..67S.100.

Comet 1904 *I.*—(*continued*).

Date. 1904	Star's Designation or Authority for Place.	Mean R.A. Equinox of Year. h m s	Corrections to Mean R.A. s	Mean Declination Equinox of Year. ° ′ ″	Correction to Mean Declination. ″	No. of Reference.
May 25	A.G.Z. Hels. Gotha, No. 7988	14 25 45·86	+2·02	58 10 54·4	+ 6·5	20
28	,, ,, ,, No 7774	13 54 48·05	+1·76	58 11 40·3	+ 7·9	21
June 3	,, ,, ,, No. 7709	13 44 0·44	+1·55	57 44 8·9	+ 9·0	22
4	,, ,, ,, No. 7657	13 36 51·08	+1·50	57 41 31·9	+ 9·2	23
12	,, ,, ,, No. 7525	13 15 53·44	+1·11	56 27 6·2	+10·3	24
21	,, ,, ,, No. 7397	12 55 28·95	+0·78	55 11 42·0	+10·4	25
28	A.G Z. Harvard, No. 4136	12 41 1·05	+0·57	53 37 16·5	+ 9·8	26
29	,, ,, ...	...	+0·54	...	+ 9·9	26
July 7	,, ,, No. 4104	12 31 46·54	+0·31	52 2 39·8	+ 9·1	27
8	,, ,, No. 4097	12 28 59·14	+0·27	51 46 17·2	+ 8·9	28
8	,, ,, No. 4098	12 29 10·59	+0·27	51 46 22·9	+ 8·9	29
9	,, ,, No. 4095	12 28 36·07	+0·25	51 38 16·7	+ 8·8	30
9	,, ,, No. 4092	12 26 9·86	+0·25	51 30 42·2	+ 8·8	31
11	,, ,, No. 4076	12 21 51·20	+0·18	51 13 49·3	+ 8·3	32
16	,, ,, No. 4079	12 22 34·33	+0·11	50 23 37·0	+ 7·9	33
18	,, ,, No. 4075	12 21 44·42	+0·08	50 1 7·8	+ 7·7	34
		Encke's Comet.				
Nov. 26	A.G.Z. Leipzig I., No. 8555	21 28 25·02	+2·06	+12 10 56·4	+25·8	35
Dec. 5	,, ,, II., No. 10528	20 57 6·34	+1·77	7 9 11·5	+22·6	36
5	,, ,, II., No. 10523	20 56 36·28	+1·77	7 0 42·7	+22·6	37

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Date.	Star's Designation or Authority for Place.	Mean R.A. Equinox of Year. h m s	Correction to Mean R.A. s	Mean Declination Equinox of Year. ° ′ ″	Corrections to Mean Declination. ″	No. of Reference.
1904 Dec. 6	A.G.Z. Leipzig II., No. 10508	20 55 14·87	+1·75	6 25 54·2	+22·3	38
8	Paris No. 28996 & Leip. II. No. 10391 ...	20 45 12·63	+1·70	5 11 14·6	+21·5	39
8	A.G.Z. Leipzig II., No. 10387	20 45 3·08	+1·70	5 6 36·3	+21·4	40
10	A.G.Z. Albany, No. 7242	20 38 52·92	+1·65	3 59 33·2	+20·6	41
13	Paris No. 28383 & Albany No. 7168 ...	20 27 46·75	+1·60	2 2 6·2	+19·4	42
14	A.G.Z. Albany, No. 7129	20 23 46·54	+1·58	1 12 20·2	+18·3	43
17	θ Aquilæ (Nautical Almanac)	20 6 21·12	+1·54	− 1 6 23·4	+17·5	44
17	A.G.Z. Nicolajew, No. 5097	20 8 58·40	+1·54	− 0 57 37·7	+17·5	45
	Comet 1905 *II.*					
1905. Jan. 4	Schjellerup, No. 442	1 21 32·24	−0·13	− 5 9 50·7	− 8·6	46
8	A.G.Z. Nicolajew, No. 308	1 31 1·08	−0·09	− 1 53 29·4	− 8·1	47
9	,, ,, No. 300	1 29 6·70	−0·12	− 1 5 14·3	− 7·8	48
9	Bonn Beob. vi. − 1° 207	1 28 38·22	−0·10	− 1 15 42·3	− 7·8	49
11	A.G.Z. Nicolajew, No. 303	1 29 54·63	−0·11	+ 0 28 1·8	− 7·4	50
26	A.G.Z. Leipzig I., No. 612	1 58 0·23	−0·06	+11 53 23·0	− 5·4	51
	Comet 1905 *III.*					
Mar. 30	A.G.Z. Berlin A., No. 1883	5 59 14·15	+0·13	+15 49 18·2	−10·7	52
Apr. 3	,, ,, B., No. 2304	6 13 37·38	+0·12	+20 37 4·5	− 9·0	53
8	A.G.Z. Cambridge, No. 3449	6 36 57·76	+0·14	+26 30 39·2	− 7·0	54

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1906MNRAS..67S.100.

Comet 1905 *V.*

Date. 1905	Star's Designation or Authority for Place.	Mean R.A. Equinox of Year. h m s	Corrections to Mean R.A. s	Mean Declination Equinox of Year.	Correction to Mean Declination.	No. of Reference.
Nov. 20	A.G.Z. Hels. Gotha, No. 14580	23 54 55·25	+4·38	+62° 27′ 46″·5	+31″·1	55
23	Bonn vol. vi., No. 4882	23 39 2·66	+3·13	+37 23 16·9	+29·2	56
24	A.G.Z. Leiden, No. 10043	23 35 1·41	+2·84	+30 35 17·3	+27·2	57
29	,, ,, No. 11721	23 34 57·39	+2·56	+ 9 32 37·9	+21·1	58
30	A.G.Z. Leipzig II., No. 11713	23 32 33·15	+2·50	+ 7 5 52·1	+20·2	59

Comet 1905 *IV.*

1906.						
Mar. 6	A.G.Z. Albany, No. 4335...	11 37 15·64	+1·11	+ 1 46 11·3	− 8·0	60
8	,, ,, ...	...	+1·14	...	− 8·2	60
8	,, ,, No. 4300...	11 28 12·87	+1·17	+ 1 48 19·3	− 8·1	61
15	,, ,, No. 4299...	11 27 47·75	+1·18	+ 1 51 37·1	− 8·6	62
18	,, ,, No. 4308...	11 29 55·90	+1·19	+ 2 0 57·7	− 8·7	63
20	,, ,, ...	...	+1·20	...	− 8·7	63
Apr. 18	,, ,, No. 4271...	11 20 59·44	+1·10	+ 2 23 23·5	− 8·6	64
20	,, ,, No. 4265...	11 19 55·46	+1·07	+ 2 36 45·9	− 8·5	65
28	,, ,, No. 4264...	11 19 36·16	+1·00	+ 2 26 4·9	− 8·2	66

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